

REMARKS

Claims 1-110 were filed in the original application. Claims 1-58 and 61-110 stand rejected. Applicants thank the Examiner for indicating that claims 59 and 60 are allowable. By the present amendment, without prejudice, claims 1-58, 61-65, 67-69 and 71-110 are canceled, and claims 66 and 70 are amended. Upon entry of the present Amendment, claims 59, 60, 66 and 70 will be pending, of which claims 66 and 70 are presented for reconsideration.

Amendments to the Claims

Independent claim 66 is amended to more distinctly recite the invention of interest. Claim 66 is amended to recite, in part, that attenuating means are cyclically closed and opened to output a pulsed non-continuous beam of ions characterized by a mark space ratio, where a closed low-transmission mode of operation blocks an ion beam from exiting the attenuating means, and an open high-transmission mode of operation allows ions to pass through and exit the attenuating means, and that switching means switches between first and second attenuation modes associated with different mark space ratios. Each attenuation mode provides a different average flux of ions exiting the attenuating means.

Independent claim 70 is similarly amended.

Support for the amendments is found throughout the application, as filed. See, for example, page 10/lines 13-20, page 12/lines 5 and 16-17, page 31/lines 15-17, page 32/lines 17-25, page 32/line 26 to page 33/line 5, and page 33/lines 12-13.

Objections to the Claims

The Office action objected to claims 2-8, 10, 12-15, 18-20, 22, 25, 26, 31-35, 39-43, 49, 67, 68, 71, 72, 74, 75, 77-80, 82, 84-91, 94, 97, 98 and 99 as comprising only functional limitations or providing no limitation. All of these claims, without prejudice, have been canceled.

Rejection of Claims 1-26, 29, 37-49, 51-53, 56-58, 61-63, 65 and 92-94 Under 35

U.S.C. § 102(b)

Claims 1-26, 29, 37-49, 51-53, 56-58, 61-63, 65 and 92-94 are rejected under 35 U.S.C. § 102(b) as being anticipated by GB Patent No. 2388704 to Green et al. ("Green"). All of these claims, i.e., claims 1-26, 29, 37-49, 51-53, 56-58, 61-63, 65 and 92-94, without prejudice, have been canceled by the present amendment.

Rejection of Claims 27, 28, 30-36, 50, 54, 55 and 64 Under 35 U.S.C. § 103(a)

Claim 27 is rejected under 35 U.S.C. § 103(a) over Green in view of U.S. Patent No. 5,083,020 to Takahashi. Claim 27 has been canceled, without prejudice, by the present amendment.

Claim 28 is rejected under 35 U.S.C. § 103(a) over Green in view of U.S. Patent No. 4,160,161 to Horton. Claim 28 has been canceled, without prejudice, by the present amendment.

Claims 30-36, 50, 54, 55 and 64 are rejected under 35 U.S.C. § 103(a) over Green in view of U.S. Patent No. 6,331,702 to Krutchinsky et al. All of these claims, i.e., claims 30-36, 50, 54, 55 and 64, have been canceled, without prejudice, by the present amendment.

Rejection of Claims 66-91 and 95-110 Under 35 U.S.C. § 103(a)

Claims 66-91 and 95-110 are rejected under 35 U.S.C. § 103(a) over Green in view of U.S. Patent No. 5,073,713 to Smith et al. ("Smith"). Claims 67-69, 71-91 and 95-110, without prejudice, have been canceled by the present amendment. For the following reasons, Applicants respectfully submit that Green and Smith, each alone or in combination, do not teach or suggest all of the features recited by either claim 66 or claim 70.

Green and Smith, each alone or in combination, do not teach or suggest all of the features recited by claim 66, as amended, because neither reference teaches that attenuating means are cyclically closed and opened to output a pulsed non-continuous

beam of ions, where a closed low-transmission mode of operation blocks an ion beam from exiting the attenuating means, and an open high-transmission mode of operation allows ions to pass through and exit the attenuating means, and that switching means switches between first and second attenuation modes associated with different mark space ratios.

Smith teaches a TOF spectrometer (MS2) [21] that includes two TOF stages [132, 134]; the spectrometer receives daughter ions deflected by a deflector [122]. See Smith, col. 19/ lines 8-12. The deflector [122] does not attenuate the beam of daughter ions by cyclically closing and opening to output a pulsed non-continuous beam of ions; rather, Smith teaches that the deflector [122] is used to deflect the beam of daughter ions alternately to the two TOF stages [132, 134] of the spectrometer [21]. See Smith, col. 19/ lines 22-24.

Thus, in contrast to the features recited by claim 66, Smith teaches that a deflected continuous beam of ions exits the deflector [122]. Although each TOF stage [132, 134] receives complementary fractions of the beam of daughter ions, the mass spectrometer [21], as a whole, receives the entire beam of daughter ions, all of which exit the deflector [122]. In contrast, claim 66 recites, in part, that ions do not exit an attenuating means in a closed mode of operation.

The Office action asserts that “Smith...teaches...[a] deflector that transmits or blocks ions into a mass spectrometer.” See Office action, page 9/ last two lines. If one equates deflection of an ion beam with blocking of the ion beam from entering a TOF stage [132 or 134], Smith, however, still does not teach that ions are blocked from exiting the deflector [122].

For the above reasons, Applicants respectfully submit that claim 66 is non-obvious in view of Green and Smith. For the same reasons, Applicants respectfully submit that claim 70 is non-obvious in view of Green and Smith, as well. In light of the foregoing, Applicants respectfully request reconsideration and withdrawal of the rejection of claims 66 and 70 under 35 U.S.C. § 103(a).

Conclusion

In view of the amendments and arguments presented herein, Applicants respectfully request that the rejection of claims 66 and 70 be reconsidered and withdrawn, with claims 59, 60, 66 and 70 proceeding to allowance. The Examiner is invited to call the undersigned, if the Examiner believes that a telephone conversation could be helpful in expediting prosecution of the instant application.

Respectfully submitted,

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